

WHAT IS CLAIMED IS:

1. A solid-state image sensing apparatus having a plurality of output channels,

5 wherein a first driving mode and a second driving mode in which pixel signals of pixels in the same image sensing area are read out can freely be set, and control is executed to change the number of output channels to be used between the first driving mode and the second driving mode.

10 2. An apparatus according to claim 1, wherein in at least one of the first driving mode and the second driving mode, a phase of a read timing of pixel signals of pixels adjacent in a horizontal direction is shifted by a predetermined amount.

15 3. An apparatus according to claim 1, wherein in the first driving mode, signals of two pixels adjacent in a horizontal direction are output in parallel from two output channels, and in the second driving mode, signals of 2×2 pixels adjacent in the horizontal direction and a vertical direction are output in parallel from four output channels, respectively.

20 4. A solid-state image sensing apparatus having color filters with a predetermined array and a plurality of output channels,

25 wherein pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output

channels while changing the number of output channels.

5 5. A solid-state image sensing apparatus having
color filters with a predetermined array, a plurality
of output channels, an X-address register, and a
Y-address register,

 wherein the X-address register and the Y-address
register are controlled so as to, for pixels in one of
an entire image sensing area and a block area,
parallellly read out pixel signals of pixels having the
10 same color relationship in color phase codings defined
by the color filters continuously or discretely from
the same output channels in accordance with a control
signal while changing the number of output channels.

15 6. A solid-state image sensing apparatus having
four output channels,

 wherein one of two-system parallel outputs for a
pair of colors, which uses two of the output channels,
and single-color four-system parallel outputs using the
four output channels is set, and control is executed to
20 read out pixel signals of pixels in an arbitrary area
of an entire image sensing range continuously or
discretely in a predetermined direction while changing
the number of output channels.

25 7. An apparatus according to claim 4, wherein
read timings of the pixel signals output in parallel
from said plurality of output channels have a phase
shift for at least one pair of different chrominance

signals.

8. An apparatus according to claim 5, wherein
read timings of the pixel signals output in parallel
from said plurality of output channels have a phase
5 shift for at least one pair of different chrominance
signals.

9. An apparatus according to claim 6, wherein
read timings of the pixel signals output in parallel
from said plurality of output channels have a phase
10 shift for at least one pair of different chrominance
signals.

10. An apparatus according to claim 4, further
comprising color filters having a Bayer matrix.

11. An apparatus according to claim 5, further
15 comprising color filters having a Bayer matrix.

12. An apparatus according to claim 6, further
comprising color filters having a Bayer matrix.

13. A method of parallelly reading out image data
from a plurality of output channels of a solid-state
20 image sensing apparatus having photoelectric conversion
units arranged in a two-dimensional array and a
plurality of output channels, comprising

assigning said plurality of output channels in
accordance with an externally input control signal,
25 sequentially addressing the photoelectric
conversion units,

transferring to said plurality of assigned output

channels pixel signals output from the addressed photoelectric conversion units, and

outputting in parallel image signals from said plurality of assigned output channels at timings having a predetermined phase difference.

14. A solid-state image sensing apparatus comprising:

a photoelectric conversion unit in which a plurality of pixels are two-dimensionally arrayed;

a vertical scanning circuit which selects pixels of the photoelectric conversion unit;

transfer switches each of which is arranged at one of one end and other end of a corresponding one of output signal lines running from the pixels and driven and controlled by a transfer signal which is commonly input to alternate columns;

line memories which store pixel signals transferred from the pixels through the transfer switches;

a horizontal scanning circuit which outputs a horizontal selection signal;

horizontal selection switches which are driven and controlled by the horizontal selection signal; and

output channels which read out the pixel signals through the horizontal selection switches,

wherein a first driving mode and a second driving mode in which pixel signals of pixels in the same image

sensing area are read out can freely be set, and control is executed to change the number of output channels to be used between the first driving mode and the second driving mode.

5 15. An apparatus according to claim 14, wherein in at least one of the first driving mode and the second driving mode, a phase of a read timing of pixel signals of pixels adjacent in a horizontal direction is shifted by a predetermined amount.

10 16. A solid-state image sensing apparatus comprising:

 color filters having a Bayer matrix;

 a photoelectric conversion unit in which a plurality of pixels are two-dimensionally arrayed;

15 a vertical scanning circuit which selects pixels of the photoelectric conversion unit;

 transfer switches each of which are arranged at one of one end and other end of a corresponding one of output signal lines running from the pixels and driven and controlled by a transfer signal which is commonly
20 input to alternate columns;

 line memories which store pixel signals transferred from the pixels through the transfer switches;

25 a horizontal scanning circuit which outputs a horizontal selection signal;

 horizontal selection switches in which two

adjacent switches are driven and controlled by the same horizontal selection signal;

one output channel which reads out the pixel signals through odd-numbered horizontal selection switches; and

the other output channel which reads out the pixel signals through even-numbered horizontal selection switches,

wherein pixel signals of pixels in the same color phase of color phase codings defined by the color filters are output in parallel from the same output channels.

17. An apparatus according to claim 16, wherein one of two-system parallel outputs for a pair of colors, which uses two of the output channels, and single-color four-system parallel outputs using the four output channels is set, and control is executed to read out pixel signals of pixels in an arbitrary area of an entire image sensing range continuously or discretely in a predetermined direction.